



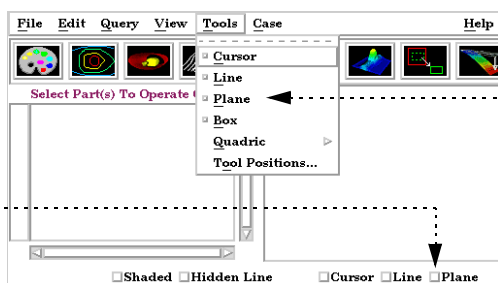
Use the Plane Tool

INTRODUCTION

EnSight provides a plane specification tool called the “Plane” tool. When visible, the Plane tool appears as a (typically white) rectangular region with an axis located at the center point. The Plane can also have a semi-transparent “filled” center that enhances visibility of the region. The Plane tool is used to supply EnSight with a planar specification, for example to specify the location for a planar clip or a “net” for a particle trace.

BASIC OPERATION

In many cases, the Plane tool will automatically turn on when performing some function that requires it. You can also turn the tool on and off manually by toggling one of the Plane entries in the Tools menu (e.g. Tools > Plane) or by clicking the Plane toggle on the Desktop.



The Plane tool can be placed in three ways: interactively through direct manipulation of tool “hotpoints” with the mouse, by positioning the mouse pointer over a part and typing the ‘p’ key, or precisely positioned by typing coordinates into a dialog.

To move the Plane with the mouse:

1. Place the mouse pointer over the center of the tool.
2. Click (and hold) the left mouse button.
3. Drag the Plane to the desired location.
4. Release the mouse button.

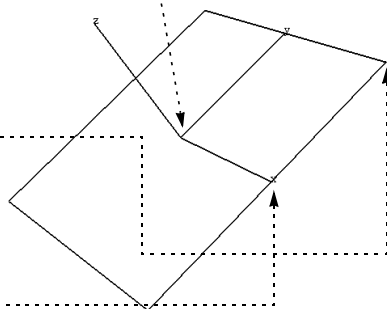
To stretch (or scale) the Plane with the mouse:

1. Place the mouse pointer over the corner between the X and Y axis labels.
2. Click (and hold) the left mouse button.
3. Drag the corner to the desired location.
4. Release the mouse button.

To rotate the Plane tool with the mouse:

1. Place the mouse pointer over one of the axis labels (X, Y, or Z).
2. Click and drag to the desired orientation. Grabbing the X (Y) label will rotate around the plane’s Y (X) axis. Grabbing the Z label enables free rotation about the Plane’s center point.

(Undo/Redo button at the bottom of screen can be used to undo/redo the tool transformation)



Plane moving is restricted to the plane perpendicular to your line of sight. If you need to move the Plane in another plane, rotate the model such that the desired translation plane is perpendicular to your new line of sight. (Note that the Plane will not exactly track the location of the mouse pointer.)

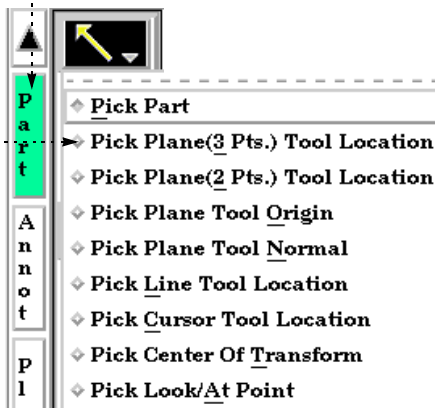


To position the Plane on a part (by specifying three points) with the 'p' key:

1. Click the Part mode button.

2. Click the Pick Pull-down and select "Pick Plane (3 Pts.) Tool Location" from the pop-up menu.

3. In the Graphics Window, place the mouse pointer on a part and press the 'p' key. Repeat two more times. Note that you are not specifying corner points – just three unique points.



You can also position the Plane Tool by tracing out a line on the screen. The Plane orientation will be changed such that it is both parallel to the specified line and perpendicular to the screen.

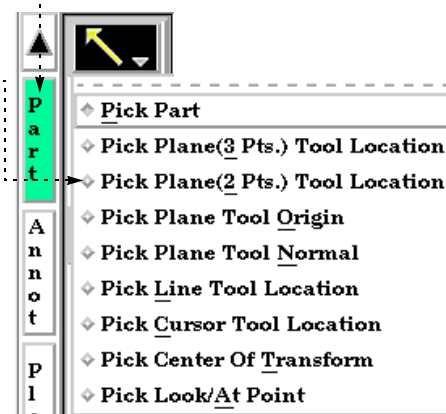
To position the Plane (by specifying a line):

1. Click the Part mode button.

2. Click the Pick Pull-down and select "Pick Plane (2 Pts.) Tool Location" from the pop-up menu.

3. Move the mouse pointer into the Graphics Window and press the 'p' key. Place the pointer over the desired starting point. Click and hold the left mouse button as you trace out the desired line.

4. Release the mouse button.

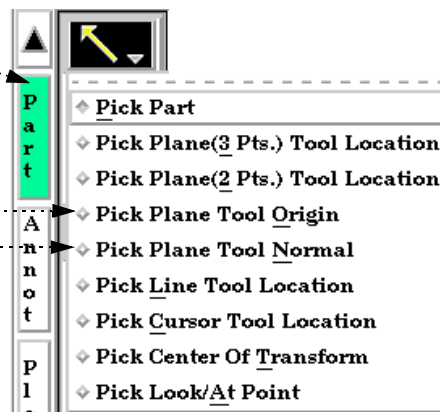




You can also position the Plane Tool by picking an origin, then a point out on the normal. This takes two picking operations to accomplish.

To position the Plane (by picking origin, then point on normal):

1. Click the Part mode button.
2. Click the Pick Pull-down and select "Pick Plane Tool Origin" from the pop-up menu.
3. Move the mouse pointer into the Graphics Window and place the pointer over the desired origin of the plane tool - then press the 'p' key.
4. Click the Pick Pull-down and select "Pick Plane Tool Normal" from the pop-up menu.
5. Place the pointer over a point along the normal vector (from the origin of the plane tool) - then press the 'p' key.



To set the Plane by specifying coordinates:

1. Open the Transformation Editor dialog from the desktop by clicking Transf. Edit...
2. Select Editor Function > Tools > Plane.

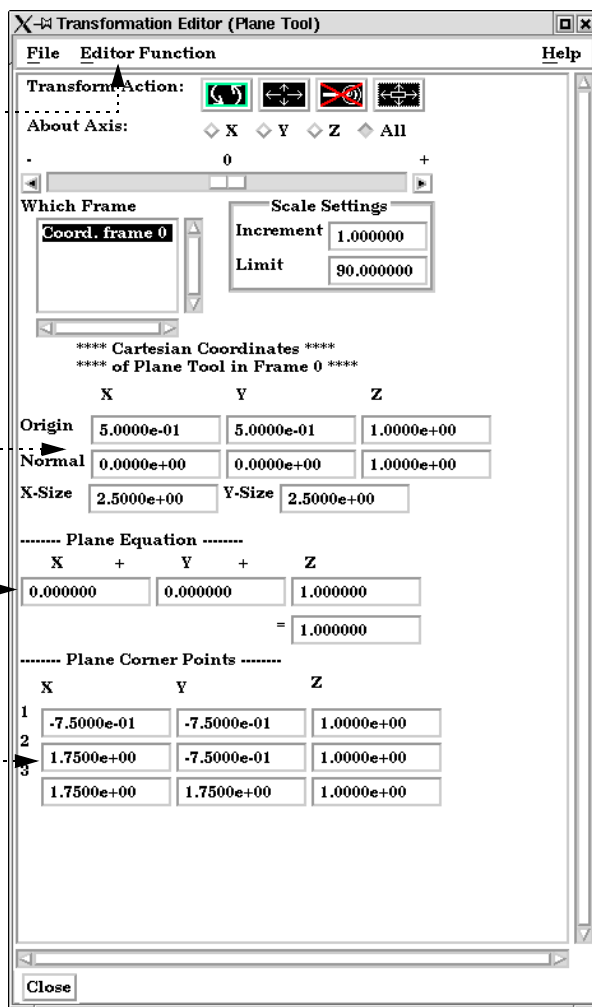
3. Enter the desired coordinates for the origin, the components of the normal vector, and the x and y size, and press return.

– OR –

3. Enter the plane equation parameters ($Ax + By + Cz = D$) and press return.

– OR –

3. Enter the desired coordinates for three corner points into the X, Y, and Z fields and press return.





You can also rotate the Plane by setting the desired axis of rotation in the Axis pop-up and manipulating the slider bar. In this case, the values in the “Scale Settings” section control the sensitivity and limit of the slider action.

Note that you can also use this dialog to view (rather than set) the position of the Plane since the X,Y,Z numeric values always update to reflect the current location. If you are positioning the Plane interactively with the mouse, the values will update when the mouse button is released.

The Undo/Redo button at the bottom of screen can be used to undo/redo the tool transformation.

ADVANCED USAGE

After a model has been loaded, the initial location of the Plane center is set to the “look-at” point – the geometric center of all visible geometry and parallel to the X-Y plane. The coordinates of the Plane are specified with respect to the default frame: frame 0. However, if you have created additional **frames**, you can position the Plane relative to the origin of a different frame. This is accomplished by selecting the desired frame in the “Which Frame” list in the Transformation Editor dialog.

You can easily reset the position and orientation of the Plane tool to the default. See [How To Reset Tools and Viewports](#) for more information.

By default the plane tool will be displayed in line mode. You can display the tool as a transparent plane by changing the setting for Edit > Preferences... View - Plane Tool Filled.

Positioning a 3D tool with a 2D device (the mouse) can be difficult. Multiple **viewports** are sometimes helpful in positioning tools since you can see the tool simultaneously from multiple vantage points.

SEE ALSO

Other tools: [Cursor](#), [Line](#), [Box](#), [Cylinder](#), [Sphere](#), [Cone](#), [Surface of Revolution](#). See the How To article on [Frames](#) for additional information on how frames effect tools.

The Plane Tool is also used to specify the location of the clip plane for [Auxiliary Clipping](#).

User Manual: [Tools Menu Functions](#)